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# Organizational Ambidexterity as an Outcome of Quality Dimensions and Triple Helix: The Role of Technology Readiness and User Satisfaction

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**Abstract:** Advancing times and rapidly developing technology put pressure and responsibility on the management of organizations. Organizational ambidexterity is a concept for an organization that can balance profitability with innovation and development. This study examined the relationship between the triple helix and quality dimensions on organizational ambidexterity mediated by technology readiness and user satisfaction to give management an advantage in addressing this problem. Quantitative analysis methods using PLS-SEM (Partial Least Square-Structural Equation Modeling) were employed in this study. This study was conducted in Indonesia with 425 respondents participating in the data collection, 411 of which were declared valid after filtering. The results of this study demonstrate that the role of the triple helix in developing organizational ambidexterity is very significant and that other variables, such as quality dimensions and technology readiness, also play an essential role. The framework for organizational ambidexterity presented in this study may be helpful for future research in this field. This study can be further developed for future research, especially by adding new external variables that change over time and focusing more on a specific organization. At the very least, this study is relevant for researchers and practitioners to improve business quality using the concept of the triple helix, quality dimensions, and technology readiness.

**Keywords:** organizational ambidexterity; triple helix; quality dimensions; technology readiness; user satisfaction



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## 1. Introduction

Extremely rapid change is a hallmark of the contemporary organizational environment. In the face of change, nothing is constant other than the change itself. Today's businesses work in a rapidly changing world that requires constant movement and adaptability. In this scenario, the most successful businesses will mix efficiency with creativity. According to management and organizational design theory, a business may select a mechanistic organizational design in order to prioritize and improve efficiency. A business that wishes to increase its innovation and agility may instead choose a sustainable organizational structure. In spite of this, the shifting organizational environment, increased rivalry, unpredictability, and escalating globalization require organizations to combine efficiency with inventiveness. According to management theory and the literature on organizational design, the organizational design option is a continuum with two extremes. If we select one, we must sacrifice the other. If the business prioritizes mechanical design, it will neglect the benefits of organic design, and vice versa. Previously, businesses could select a certain dimension, such as innovation, flexibility, new opportunities, or efficiency, control, and maximizing existing resources.

Organizational ambidexterity has been a topic of discussion for many years, and data suggest that numerous businesses have attempted to implement it. Companies with

ambidextrous innovation strategies can make use of their current goods to fuel continuous improvement while also seeking out new markets to fuel major breakthroughs [1]. Numerous restraints, such as regulations and policies, provide a significant obstacle to the management's ability to drive and implement innovation. When managers identify a chance to establish a new vision, develop a new strategy, and drive the organization in a new direction, they must strike a balance between altering rules and sticking to regulations [2]. If companies over-centralize rule modifications and allow them to go unchallenged, feasible and pragmatic business adjustments can result in chaos. While excessive centralization of rule-following can result in a more stable business structure and/or a regulated industry transition, it also increases the possibility of change delay.

Organizational ambidexterity cannot arise or exist on its own, but it is fostered by a number of factors. This study investigates the triple helix, service dimensions, technological readiness, and loyalty intention. Numerous historical studies have examined the triple helix, particularly those with industrial elements as the focus of inquiry, because the triple helix itself has three dimensions, namely university, industry, and government. Several studies recognize the role of the triple helix, including one [3] that uses the triple helix to test the innovation system and another [4] that tests the theory of the triple helix in terms of technology readiness. The crucial variable in this study is the triple helix theory's interaction with organizational ambidexterity, which should help researchers view the research conclusions from three viewpoints, notably in terms of the triple helix's own dimensions.

According to [5], quality factors also contribute to the growth of organizational innovation. Refs. [3,6] define quality dimensions as a concept for assessing the value of various variables that influence the results of an activity, organization, or system. In [7], a business's evaluation system includes service quality and knowledge quality as quality elements. According to the study, these two aspects play a significant role in deciding the quality level that users perceive or experience when using the system and can ultimately lead to a new perspective on the system. Another study [8,9] investigated customer satisfaction by employing system quality as a mediator to test their hypothesis. According to [10], system quality is crucial to ensuring that user or customer satisfaction are appropriately established; nevertheless, other variables predominate this component in this study. This study evaluates the impact of three quality elements, notably service quality, knowledge quality, and system quality, on the development of organizational ambidexterity. Also studied is the role of the three dimensions in structuring organizational ambidexterity as mediated by user satisfaction. In this study, technology readiness is the major mediator between the triple helix and the quality components of organizational ambidexterity. Optimism, innovativeness, discomfort, and uncertainty are the four indicators of technology readiness. These four dimensions are studied as triple helix and quality dimension organizational ambidexterity mediators.

Numerous research examines organizational ambidexterity, such as the study [2–5,11] that examines the effect of technology readiness on organizational ambidexterity. This research lacks an understanding of the interaction of variables, such as the triple helix and dimensions of quality on organizational ambidexterity. Consequently, this study aims to examine the triple helix and quality dimensions in organizational ambidexterity as mediated by technology readiness and user satisfaction.

## 2. Literature Review and Hypothesis

### *2.1. Triple Helix*

Develop organizational ambidexterity has been the subject of numerous studies. Among these are the triple helix model, the techno-economic network model, the open innovation model, and the national innovation system model, as well as the quadruple and quintuple helix models [12]. As shown in [13], each model has a different take on how actors in the innovation system can share knowledge to create value. Some of these models, such as the management perspective for innovation system development [14], focus on

how the different players work together to create synergies. Others examine additional factors, such as government innovation systems [15]. In this study, we employ a triple helix perspective that emphasizes the role of actors and adheres to the triple helix (TH) framework. The triple helix model highlights the role of key players in building organizational ambidexterity [16]: various types of universities, governments, and organizations. In society, universities are the ones who actively engage in educational and scientific pursuits. Public institutions at all levels of government, from the federal to the municipal, are included in the government pillar of the triple helix model since they all play a role in the creation of public policy. Private businesses, NGOs, and cooperatives are all examples of private sector social and private activities that are included in the triple helix model but not the public or nonprofit sectors. However, we opted for the most traditional of these three approaches because academics and policymakers view it as a unified framework that provides a good interface for empirical research. Each aspect of this model significantly influences promoting organizational ambidexterity [17].

Developing organizational ambidexterity requires the triple helix, especially when resource management entails complicated problems that a single actor cannot solve. The triple helix concept can be utilized to ensure and implement organizational ambidexterity. We define organizational ambidexterity as "the ability to simultaneously pursue incremental innovation and discontinuity by accommodating several contradictory structures, processes, and cultures inside the same organization" based on recent examples of organizational ambidexterity development. As a result, the triple helix is considered a suitable model for establishing organizational ambidexterity, as its pillars encourage various crucial features for developing organizational ambidexterity.

### *2.2. Quality Dimensions*

As a multidimensional notion, quality dimensions might signify different things to different people, according to the relevant literature. Per [18], customer quality dimensions differ between actual service performance and customer expectations. Likewise, Ref. [19] defines quality dimensions as "the magnitude and direction of the gap between customer perceptions and expectations". According to the literature, "quality dimensions have been widely defined with an emphasis on meeting needs and requirements and the degree to which the service supplied satisfies customer expectations". In addition, they propose that "quality dimensions are global consumer judgments or attitudes regarding services that result from comparing consumers' expectations of services to their assessments of actual service performance". The quality dimensions that matter to customers are the ones that separate their ideal experience from their real one. Quality dimensions are the ways in which consumers rate the overall excellence of a product or service [20]. In addition, quality dimensions are defined as "the delivery of exceptional or superior service relative to client expectations".

Specifically, "the perceived quality of a service is a consequence of the difference between consumers' expectations and their views of the service they get", as stated in the previous field of applied research [21]. In support of this notion, Ref. [22] stated that quality dimensions quantify the degree to which a product or service meets customers' expectations. Based on the above definition of quality dimensions, it can be inferred that quality dimensions are the customer's evaluation of how well the service satisfies their expectations in terms of perception. In this study, the quality dimensions serve as a standard for establishing and evaluating the generated organizational ambidexterity based on the view or perspective of the industry's users or customers. In general, quality dimensions consist of multiple dimensions; however, just three dimensions are employed in this study: system quality, knowledge quality, and service quality. These three aspects have been proven to play a significant role in developing organizational ambidexterity.

### *2.3. Technology Readiness*

Technology readiness refers to the capacity of individuals to adapt and utilize new technology to fulfill their personal and professional objectives [23]. The concept of technology readiness refers to a predisposition toward technology that is determined by a gestalt of mental facilitators and inhibitors. Four components comprise the construct: optimism, innovativeness, discomfort, and uncertainty.

A positive view on technology stems from the belief that it improves people's lives by giving them more control over their environments and allowing them to work more quickly and effectively. There is a widespread perception that technology is a positive and beneficial thing. The ability to be a pioneer in technological advancement and a thinking leader is what we mean when we talk about innovativeness. It indicates the degree to which a person is an early adopter of new goods or services that are based on technology and an expert on issues that are associated with technology. The sense of not having control over technology and being overwhelmed by it is referred to as discomfort. This idea evaluates people's prejudices against products and services based on technology. Lack of faith in technology and skepticism about its efficacy are hallmarks of uncertainty. The emphasis is on people's confidence in technology-enabled transactions.

An individual's inclination to accept new technologies may be seen as a mental state caused by a mixture of cognitive facilitators and barriers [24], as described by the concept of technology readiness. Customers are more likely to use and have a more optimistic perspective on technology goods and services if businesses are optimistic and creative. Customers are dissuaded from utilizing technology when they experience discomfort and uncertainty. It was discovered in [25] that customer segments with varying profiles of technology readiness exhibit notably distinct internet-related behaviors. X also demonstrated that not all users are equally prepared to accept services afforded by technology. Therefore, technology readiness should not be disregarded when evaluating client acceptance of technology-enabled services. Its function should be explained and incorporated into any technology acceptance model, particularly in industry innovation and organizational ambidexterity.

This study addresses research gaps by incorporating technology readiness into the triple helix and quality dimensions as variables of customer personality in the context of organizational ambidexterity. This study examines customer qualities' effect on organizational ambidexterity in parallel with two other research areas. The first theory assumes that individual characteristics influence behavioral intentions via direct effects on perceptions. The second view highlights the significance of the moderating effect of individual characteristics on organizational ambidexterity. On the basis of these findings, we argue that technological readiness influences organizational ambidexterity in both a direct and moderating way.

### *2.4. User Satisfaction*

The concept of user satisfaction extends back to [26], who claimed that information systems that match the demands of their users boost [27] user satisfaction. After these initial studies, user satisfaction became a widely respected research topic, reaching its pinnacle in late 2010.

In the earliest stages of user satisfaction research, [28] identified user satisfaction as one of the most influential criteria influencing business success. They anticipated that people would utilize an information system if they were satisfied with it. Consequently, satisfaction is an excellent indicator of innovation system success. In contrast, it is doubtful that people will utilize the system if they do not find it satisfying. In order to improve the system, it is essential to understand how users perceive it and its flaws. Ref. [29] discovered a strong correlation between managers' involvement in organizational management development and their appreciation of the system, suggesting that user participation is the key to organizational system success. Ref. [30] discovered an association between users' perceptions of organizational performance and their responses to satisfaction variables. User satisfaction is described in [31] as the level to which users perceive the available

information system fits their needs. User satisfaction is an effective surrogate for a crucial component of information systems that cannot be quantified. Specifically, changes in organizational success. The conclusion of [32] is that user satisfaction leads to system usage and should therefore be prioritized as a measurement of organizational success.

User satisfaction, together with user attitude and user engagement, were all shown to have a significant impact on a system success, as examined by [33]. Given the importance of user satisfaction as a measure of organizational success, the measurement of user satisfaction has been thoroughly explored, and several user satisfaction assessments and questionnaires have been developed. However, there is no universally approved measurement, nor do all organizations utilize the same group of measures.

### *2.5. Organizational Ambidexterity*

Organizational ambidexterity has existed for many years, and research indicates that numerous organizations have attempted to incorporate it. Ambidextrous organizations leverage existing products to enable incremental innovation and explore new opportunities to promote radical innovation [34]. Ambidexterity is the capacity to utilize existing strengths and explore new opportunities simultaneously. Exploiting existing resources focuses on refining and reusing products and processes. Exploration, on the other hand, focuses on the flexibility and radical thinking of the organization and its leaders, resulting in significant changes within the business, or what is known as radical innovation. Also close are alignment and adaptability, agility and stability, teamwork, and individual focus. Some experts say these qualities can exist in organizational and team contexts. Exploration is concerned with search, discovery, and risk-taking; exploitation is concerned with execution, performance, refinement, selection, and implementation, as well as avoiding risk [35]. Organizational ambidexterity is a relatively new term in the field of organizational dynamics. It entails the production of new goods and services [36].

An organization's responsiveness to rapid change is exemplified by its ambidexterity. It complements the capacity to seize and investigate new opportunities [37]. Ambidexterity signifies that exploration and exploitation will occur at the individual level to produce synergy. In other studies, ambidexterity is characterized as a strategy to increase organizational effectiveness and efficiency by utilizing the development and accumulation of information through exploration and exploitation processes [38]. Exploitation and exploration are at opposite ends of two continuums; therefore, it is difficult to conduct both. An organization loses its competitive advantage if its products become outmoded, and its procedures are less effective and efficient than those of its rivals. However, it is frequently simpler to highlight exploitation because most organizational structures and cultures prioritize stability and control. In contrast, an excessive emphasis on exploration results in numerous lists of prospective ideas for new products and procedures for new customers and clients in new markets that are rarely realized. When we focus on exploration, which is radical innovation, we frequently provide radically new goods or processes that build on the business's current competencies, which indicates that the business's existing knowledge is familiar. If we are to undertake radical innovation, we must also prioritize the development of current skills and knowledge. It implies that priority must be placed on both exploration and exploitation. In order to capture the economic worth of discovery, it is vital to acknowledge exploitation as well. Similarly, a focus on exploitation will promote evolutionary development and control.

Numerous restraints, including legislation and policies, pose a formidable obstacle for management in encouraging and implementing innovations. Moreover, managers struggle to balance rule changes and regulations when they recognize a chance to establish a new vision, construct a new strategy, and steer the organization on a new path [39]. If the business concentrates excessively on regulatory change and leaves it unchecked, organizational transformation, which is reasonable and doable, can result in instability. An overemphasis on rule-following may result in a more stable organizational structure or regulated organization change, but there is a risk that this will delay change. There are a

number of recommendations that are important for leaders to manage ambidexterity effectively. These are the precise processes that enable businesses to successfully manage distinct "explore and exploit" components and harness shared assets to enable the organization to adapt to new possibilities and threats. These traits enable managers to rearrange existing competencies and assets to seize new possibilities, even as the organization continues to compete in mature markets. Without these characteristics, the strength of inertia maintains the business's exploitative stance.

Hence, ambidexterity is more likely to succeed in the presence of the following five conditions:

1) A compelling strategic intent that intellectually justifies the importance of both exploration and exploitation.
2) The articulation of a shared vision and values that create a common identity for all exploitation and exploration entities.
3) A senior team explicitly responsible for the unit's exploration and exploitation strategy; there is a reward system for shared destiny, and the strategy is relentlessly communicated.
4) Separate but aligned organizational architectures (business model, structure, incentives, metrics, and culture) for exploration and exploitation units and focused integration at the senior and tactical levels to properly leverage organizational benefits.
5) The ability of senior leadership to tolerate and resolve tensions arising from different alignments.

Consider the implications of ambidexterity in the absence of these characteristics. First, without an intellectually convincing strategic aim to justify the ambidextrous structure, there is no justification for a profitable functioning business, especially one under pressure, to forego funding a modest and uncertain exploration initiative. Table 1 described information related operation definitions.

**Table 1.** Operational definitions.

| Construct | Definition | Source |
| --- | --- | --- |
| Triple Helix | The triple helix is described as a concept of collaboration between government, university, and industry in which the government is a policy maker, the university is a research development center, and industry is a provider of services to the community must achieve common goals. | [12–15,17] |
| Quality Dimension | Quality dimensions are the requirements for a product's value to match customer expectations, whereas product quality dimensions include systems, information or knowledge, services, goods, as well as appropriateness or correctness. | [18,20–22] |
| Technology Readiness | Refers to a combination of technology-related beliefs that collectively determine a customer's, employee's, or executive's tendencies to adopt new technology to achieve their objectives, both at work and during leisure time. | [23,25] |
| User Satisfaction | Refers to how comfortable the user is with the system and how well they like it or how innovative the system is while they are using it and consuming content. | [26–29] |
| Organizational Ambidexterity | The degree to which a business or an organization can balance the introduction of new technologies with the preservation of existing ones and the maintenance of earnings. | [34,35,37,38] |

## 3. Hypothesis Development

The triple helix requires interaction to enable the effective development of organizational ambidexterity. The triple helix model addresses these interactions and the resulting outcomes [12,40]. Again, we refer to the formulation of organizational ambidexterity development. As the triple helix develops in technology readiness, we expect this process to have a synergistic effect on the development of organizational ambidexterity: The more involved

the triple helix, the more clearly the innovation policy is oriented toward collaborative activities to develop organizational ambidexterity. As a triple helix actor, the government can create incentives for collaboration, such as special innovation funds for university–industry collaboration or new collaborative projects between companies. The private sector or industry can contribute by creating collaborative community activities, such as startup networking programs focused on sustainable technologies, or social programs in the community. In addition, universities can play an important role in collaboration by creating an environment for public discussion and the development of ideas among stakeholders, thus promoting organizational ambidexterity. These examples demonstrate the triple helix's important role in enhancing collaborative activities and its role in technology readiness related to the development of organizational ambidexterity. Although the presence of the three triple helix actors does not guarantee that they will cooperate, each can contribute independently to organizational ambidexterity and form the basis for cooperative activities that contribute to the development and improvement of organizational ambidexterity. Therefore, we propose the following:

**H1.** *The triple helix in the aspect of university has a significant role in technology readiness.*

**H2.** *The triple helix in the aspect of industry has a significant role in technology readiness.*

**H3.** *The triple helix in the aspect of government has a significant role in technology readiness.*

Theoretical and empirical research demonstrates that system quality and knowledge quality influence organizational development and user satisfaction [18,20,22,41] favorably. Our concept determines service quality by how well the system supports and enhances organizational ambidexterity-related technology readiness. The concept that system quality contributes to high-quality organizational ambidexterity stems from the fact that academics and experts can benefit from utilizing the system if the system's quality is sufficient. The system decreases the extra effort required to identify innovations or contributions. An easy-to-use system is one that is obvious, intelligible, and requires minimal effort to operate. User satisfaction has been proven to be influenced by system quality. Kumar et al. [42] discovered a clear correlation between system quality and technology readiness. Since quality dimensions are also a sort of information system, it is logical to assume that higher system quality levels will allow workers to finish jobs more quickly, enhancing user satisfaction overall. Easier-to-use quality dimensions will reduce the utilization threshold, resulting in more usage.

On the other hand, past research has demonstrated a favorable relationship between knowledge quality and organizational members. Knowledge quality can improve information quality in the context of technology readiness since it relates to the type of material and knowledge stored inside the system. Knowledge quality is defined as the extent to which the system's or technology's knowledge assists users in completing their jobs. Jafari-Sadeghi et al. [23] discovered that the relationship between information quality and use is considerable. In addition, following the evolution of organizational ambidexterity, we propose that combining system quality, knowledge quality, and service quality defines technology readiness and total user satisfaction. This paper aims to confirm the following empirical hypotheses based on the literature and theoretical analysis:

**H4.** *System quality has a significant role in technology readiness.*

**H5.** *Knowledge quality has a significant role in technology readiness.*

**H6** . *Service quality has a significant role in technology readiness.*

**H7.** *System quality has a significant role in user satisfaction.*

**H8.** *Knowledge quality has a significant role in user satisfaction.*

**H9.** *Service quality has a significant role in user satisfaction.*

Research on technology readiness and user satisfaction has found a positive relationship between organizational ambidexterity. Of the specific dimensions of technology readiness, optimism, a positive factor for organizational ambidexterity, refers to a positive attitude toward technology and the belief that technology offers people more control, flexibility, and efficiency. Therefore, optimistic people find certain technologies more useful because they are less concerned about possible negative consequences [43]. The researchers also found that early adopters who are more innovative have less complex beliefs about new technologies. On the other hand, Damerji and Salimi [44] found that some of the real barriers to technology adoption were due to security and privacy concerns. High personal insecurity and discomfort in using technology lead to lower perceived usefulness of a particular technology. Because technology readiness results from the interplay of positive drivers and negative barriers, we hypothesize that consumers with higher technology readiness will be more likely to experience organizational ambidexterity:

**H10.** *Technology readiness has a significant role in organizational ambidexterity*.

Consumers' technology readiness positively relates to their perception of technology-based user satisfaction [45]. In particular, users with higher levels of innovation and optimism are more likely to be satisfied [46]. On the other hand, individuals with higher levels of uncertainty and discomfort perceive technology as being more complex, which reduces their chances of high user satisfaction. High personal uncertainty and discomfort with technology in general lead to lower user satisfaction [47]. Therefore, we hypothesize that consumers with higher technology readiness scores are more likely to achieve higher user satisfaction.

**H11.** *Technology readiness has a significant role in user satisfaction*.

Today, knowledge is widely recognized as the most important competitive factor that can significantly support and drive business adaptation, survival, and excellence. Organizations have long recognized that technology readiness and user satisfaction are important tools for gaining competitive advantage and improving performance. Technology readiness is believed to facilitate higher performance and efficient response to member needs and demands. Several observations show a positive relationship between technology readiness and organizational performance versus user satisfaction as Oppong et al. [48] state that knowledge management can increase the profitability of an organization. In addition, organizations can improve their efficiency, which positively impacts the organization's position, by acting smarter in their market or environment. Talukdar and Yu [49] reported a positive impact of user satisfaction on the impact of organizational management work for successful organizational ambidexterity. Oppong et al. [48] found that user satisfaction is an important factor influencing personal impact. Junnonyang's study [50] showed that user satisfaction significantly correlates with four dimensions of the impact scale, task productivity, task innovation, customer satisfaction, and management control, which can lead to perfect organizational ambidexterity. Moreover, in accordance with the model, this study proposes that user satisfaction also leads to organizational ambidexterity. Based on this, we formulated the following hypothesis:

**H12.** *User satisfaction has a significant role in organizational ambidexterity.*

## 4. Research Method

An online self-assessment questionnaire survey was conducted from January 2022 to June 2022 to collect sample data. The participants in this study are members, executives, and leaders or chairs of organizations who are familiar with the concept of organizational ambidexterity. According to surveys conducted by [42,51], Indonesia ranks fourth in the world in terms of organizational growth after China, Japan, and India. Therefore, Indonesian nationals are suitable respondents for this study. Data screening was conducted to exclude inexperienced respondents. Of the 450 respondents who chose to complete our questionnaire, only 429 respondents had experience with organizational ambidexterity.

This study examines small and medium enterprises that focus on services and products, such as software development, food, education, and transportation. Table 2 described information related demographics of the sample for this study.

**Table 2.** Demographics sample.

| Characteristics | Items | Frequencies | Percentages |
|---|---|---|---|
| Gender | Male | 278 | 67.64% |
| | Female | 133 | 32.36% |
| Age | 21–30 | 50 | 12.16% |
| | 31–40 | 188 | 45.74% |
| | >41 | 173 | 42.09% |
| Educational Level | Senior High School | 65 | 15.81% |
| | Associate Degree | 73 | 17.76% |
| | Bachelor | 105 | 25.54% |
| | Postgraduate | 168 | 40.87% |

The questionnaire is organized into two parts: demographic information and hypothesis measurement. This research structured the overall framework based on the respective frameworks used in previous studies (as shown in Figure 1). The questions were based on preliminary studies and pre-validated scales. The content validity of the questionnaire was then properly verified. A 7-point Likert scale was adopted in this study to improve the scale's accuracy [52]. To determine the sample from the population, calculations and reference tables developed by experts were used. In general, for correlational research, the minimum sample size to obtain good results is 30; in experimental research, the minimum sample size is 15 from each group; and for survey research, the minimum sample size is 100.

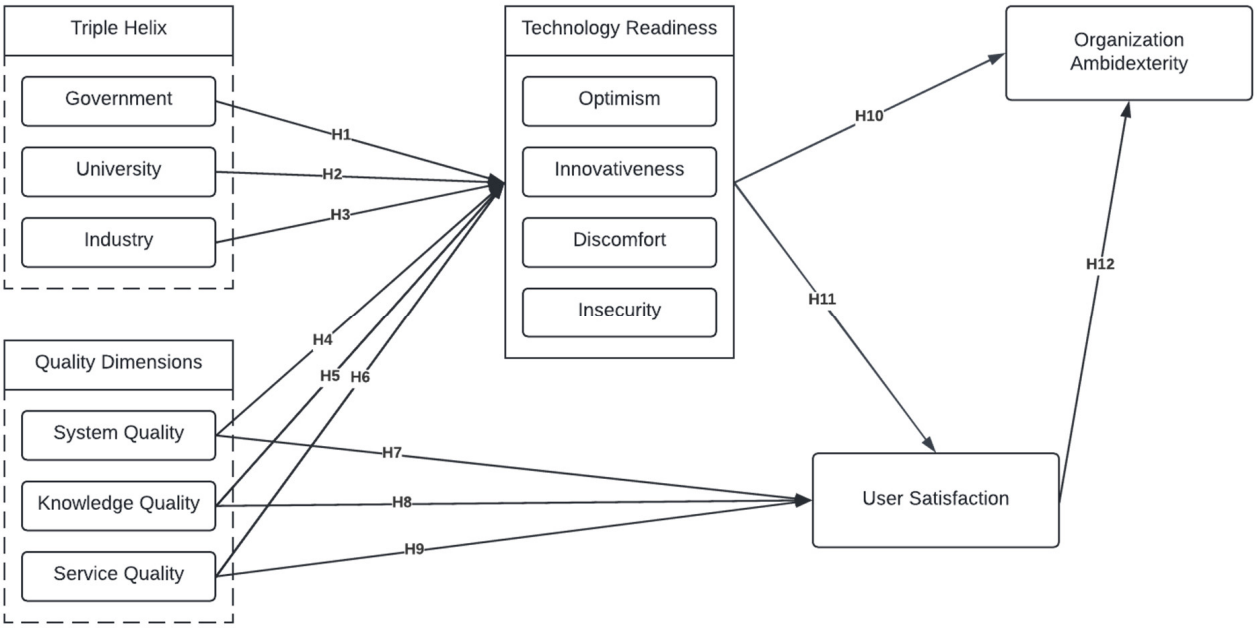


**Figure 1.** Research framework.

This study uses the Slovin method (1993), which determines the accuracy of the sample size based on the level of error adjusted to the research needs. This research uses a 1% error rate (0.01). The sample size for SEM is calculated based on the Slovin (1993) formula below:

$$n = \frac{N}{N(d^2) + 1}$$

Notes:

n = number of samples
N = total population
e = % tolerable accuracy tolerance

Population (N) of 429 respondents from universities, industry, and government assuming an error rate (e) = 1%, then (n) is

$$n = \frac{429}{1 + 429\ (0.01)^2} = 411.35295 = 411 \text{ sample}$$

The sampling technique using the Slovin formula amounted to 429 respondents from universities, industries, and governments. The selection of the above sample units uses the "Proportionate Stratified Random Sampling" technique, due to the homogeneity of the same groups or strata, and the calculation is taken proportionally. The sampling process is random, with the intention that each element in the population can have an equal chance of being selected as a research sample. Based on this search, respondents have an equal chance of being selected as a sample so as to explain the higher accuracy when compared to random sampling with a large size.

In order to prevent individuals from completing the survey at repetitive times, we required them to provide an email address. A t-value analysis was performed to check for multicollinearity between the constructs and ensure that the model is relevant. The SmartPLS calculation results provided a T-value. Hair et al. [53] mentioned that the T-value for a variable should be <5.0.

This study used primary data from the triple helix collected using a questionnaire. This study examines the engagement of government, industry, and universities in supporting SME activities. The Indonesian government, through the Ministry of Education, Culture, Research, and Technology, has established a joint website (kedaireka.id) that represents a holistic integration of university, government, and industry. This website serves as a bridge between the university as a provider of skilled labor, the government as an owner of policies and funds, and industry as a venue for business activities.

## 5. Data Analysis

SmartPLS 3 was used for all the measuring and analyzing. The variables that were measured in this research are listed in Table A1 (Appendix A Section). Measurement-stage analyses included reliability and validity tests, whereas analysis-stage tests and examinations looked at path coefficients and the robustness of the stated structural model. The purpose of these two steps is to verify the constructs' validity and reliability and to investigate their interplay. The authors of this study investigated the relationships between the triple helix, quality dimensions, technology readiness, user satisfaction, and organizational ambidexterity, all of which are comprised of a number of different indices that have been the subject of prior research.

The following are some of the reasons why PLS is a better choice than other SEM methods for this investigation: to begin with, PLS is able to manage models that concurrently create and measure things, making it a great tool for addressing causal links between variables. PLS may also be used to evaluate complex prediction models that include a wide variety of theoretical frameworks and empirical factors [52,54]. This study framework is intricate because it reveals several connections and interdependencies among various concepts, including the triple helix, quality dimensions, technology readiness, user satisfaction, and organizational ambidexterity. The sample size for a PLS analysis should be five to ten times the total number of paths in the model. With 411 samples and 5 total routes, PLS analysis proved feasible and applicable in this investigation. Second, previous research identified the triple helix as a formative construct of the second order. When compared to covariance-based SEM, PLS excels because it is able to evaluate both retrospective and prospective information concurrently [53,54]. In contrast, other forms of analysis are limited to assessing lagging or reflected indicators at best.

Although there are many positive aspects to the PLS technique, there are also some downsides [52]. Parameters are optimized in PLS-SEM before the structural model's path coefficients are estimated. The questionnaire was examined by professionals in organizational management to guarantee that the measurement points are suitable for the research and provide reliable findings. The absence of an appropriate global measure of model fit also hinders the application of PLS-SEM for testing and confirmation. Consequently, in this study, the goodness of fit was determined manually based on prior research.

In this study, the multicollinearity that exists among the constructs is examined in using VIF. The VIF value serves to guarantee that the model developed is applicable. For the VIF value to be considered acceptable, it must be less than 5.0. The result of analysis indicates that there is no multicollinearity in this study since the value of each construct is less than 5.0, which corresponds to a value of 1.000 to 2.889, as described in Table 3.

**Table 3.** Inner VIF result.

| Name of Construct | VIF |
|---|---|
| GOR → TER | 2.264 |
| UNR → TER | 2.450 |
| INR → TER | 2.575 |
| SYQ → TER | 1.000 |
| SYQ → SAT | 2.889 |
| KMQ → TER | 1.834 |
| KMQ → SAT | 1.947 |
| SEQ → TER | 1.676 |
| SEQ → SAT | 1.304 |
| TER → ORA | 2.706 |
| TER → SAT | 2.128 |
| SAT → ORA | 2.706 |

Note: GOR = government; UNR = university; INR = industry; SYQ = system quality; KMQ = knowledge quality; SEQ = service quality; TER = technology readiness; SAT = user satisfaction; ORA = organizational ambidexterity.

### *5.1. Outer Model and Validation*

Within the outer model, the three primary aspects tested are reliability analysis, divergent validity, and convergent validity. The composite reliability criteria 0.7 value was met or surpassed across all constructs, suggesting adequate reliability. If the factor loadings of the predictors and the average variance recovered are both more than 0.5, then the construct exhibits convergent validity, as stated by Hair et al. [53]. Factor loadings and reliability test results for the different construct components are shown in Table 4. In addition, discriminant validity determines the degree of distinction between the measured variables and diverse construct criteria. For a variable to be considered discriminately valid, it must have factor loadings for each assigned construct that are larger than loadings for all other constructs [54] (Table A2 in Appendix A). Fornell Larcker's (1981) notion that the square root value of the AVE must be greater than the correlation coefficient can be employed as well. As shown in Table 5, the analysis of cross loadings and factor loadings revealed strong discriminant validity.

**Table 4.** Construct validity and reliability.

| Measurement Items | Loading Factors | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|---|---|---|---|---|
| DIC1 | 0.845 | 0.833 | 0.899 | 0.749 |
| DIC2 | 0.886 | | | |
| DIC3 | 0.865 | | | |
| INS1 | 0.798 | 0.749 | 0.856 | 0.664 |
| INS2 | 0.812 | | | |
| INS3 | 0.834 | | | |
| INV1 | 0.882 | 0.842 | 0.904 | 0.758 |
| INV2 | 0.840 | | | |
| INV3 | 0.890 | | | |
| OPT1 | 0.905 | 0.815 | 0.891 | 0.733 |
| OPT2 | 0.884 | | | |
| OPT3 | 0.774 | | | |
| GOR1 | 0.823 | 0.867 | 0.905 | 0.658 |
| GOR2 | 0.853 | | | |
| GOR3 | 0.873 | | | |
| GOR4 | 0.828 | | | |
| GOR5 | 0.658 | | | |
| INR1 | 0.816 | 0.879 | 0.912 | 0.675 |
| INR2 | 0.794 | | | |
| INR3 | 0.833 | | | |
| INR4 | 0.862 | | | |
| INR5 | 0.802 | | | |
| KMQ1 | 0.851 | 0.890 | 0.919 | 0.695 |
| KMQ2 | 0.757 | | | |
| KMQ3 | 0.855 | | | |
| KMQ4 | 0.844 | | | |
| KMQ5 | 0.857 | | | |
| UNR1 | 0.814 | 0.881 | 0.913 | 0.679 |
| UNR2 | 0.784 | | | |
| UNR3 | 0.817 | | | |
| UNR4 | 0.876 | | | |
| UNR5 | 0.825 | | | |
| ORA1 | 0.823 | 0.876 | 0.911 | 0.675 |
| ORA2 | 0.875 | | | |
| ORA3 | 0.885 | | | |
| ORA4 | 0.855 | | | |
| ORA5 | 0.644 | | | |

**Table 4.** *Cont.*

| Measurement Items | Loading Factors | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|---|---|---|---|---|
| SAT1 | 0.880 | 0.895 | 0.923 | 0.706 |
| SAT2 | 0.789 | | | |
| SAT3 | 0.875 | | | |
| SAT4 | 0.868 | | | |
| SAT5 | 0.785 | | | |
| SEQ1 | 0.819 | 0.844 | 0.890 | 0.619 |
| SEQ2 | 0.654 | | | |
| SEQ3 | 0.847 | | | |
| SEQ4 | 0.790 | | | |
| SEQ5 | 0.808 | | | |
| SYQ1 | 0.808 | 0.855 | 0.898 | 0.640 |
| SYQ2 | 0.847 | | | |
| SYQ3 | 0.871 | | | |
| SYQ4 | 0.824 | | | |
| SYQ5 | 0.624 | | | |

Note: UNR = university; INR = industry; GOR = government; SYQ = system quality; KMQ = knowledge quality; SEQ = service quality; OPT = opportunity; INV = innovativeness; DIC = discomfort; INS = insecurity; SAT = user satisfaction; ORA = organizational ambidexterity.

**Table 5.** Discriminant validity Fornell Larcker criterion.

| | DIC | GOR | INR | INS | INV | KMQ | OPT | ORA | SAT | SEQ | SYQ | TER | UNR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIC | 0.865 | | | | | | | | | | | | |
| GOR | 0.755 | 0.811 | | | | | | | | | | | |
| INR | 0.769 | 0.737 | 0.822 | | | | | | | | | | |
| INS | 0.726 | 0.799 | 0.621 | 0.815 | | | | | | | | | |
| INV | 0.775 | 0.631 | 0.601 | 0.779 | 0.871 | | | | | | | | |
| KMQ | 0.791 | 0.656 | 0.626 | 0.79 | 0.658 | 0.834 | | | | | | | |
| OPT | 0.728 | 0.723 | 0.748 | 0.823 | 0.702 | 0.605 | 0.856 | | | | | | |
| ORA | 0.755 | 0.795 | 0.74 | 0.799 | 0.625 | 0.648 | 0.72 | 0.821 | | | | | |
| SAT | 0.725 | 0.739 | 0.766 | 0.796 | 0.588 | 0.614 | 0.728 | 0.646 | 0.84 | | | | |
| SEQ | 0.768 | 0.655 | 0.791 | 0.746 | 0.583 | 0.598 | 0.665 | 0.656 | 0.642 | 0.787 | | | |
| SYQ | 0.744 | 0.696 | 0.637 | 0.787 | 0.619 | 0.642 | 0.713 | 0.693 | 0.64 | 0.654 | 0.800 | | |
| TER | 0.751 | 0.613 | 0.623 | 0.648 | 0.697 | 0.721 | 0.628 | 0.710 | 0.694 | 0.746 | 0.601 | 0.790 | |
| UNR | 0.770 | 0.735 | 0.682 | 0.81 | 0.600 | 0.629 | 0.752 | 0.739 | 0.662 | 0.688 | 0.737 | 0.621 | 0.824 |

Note: UNR = university; INR = industry; GOR = government; SYQ = system quality; KMQ = knowledge quality; SEQ = service quality; OPT = opportunity; INV = innovativeness; DIC = discomfort; INS = insecurity; SAT = user satisfaction; ORA = organizational ambidexterity.

### *5.2. Result of Inner Model and Testing of Hypotheses*

For the purpose of this research, hypotheses were evaluated using an internal PLS model analysis. The t values, *p* values, and *p* paths, as well as the outcomes of the hypothesis tests, are shown in Table 6. The results demonstrate that every hypothesis is significant and positive. Figure 2 depicts the results of the hypotheses as well.

**Table 6.** Result of the inner model conclusions.

| Hypothesis | | Path Coefficient | T statistics | *p* Values | Results |
|---|---|---|---|---|---|
| H1 | GOR→TER | 0.421 | 2.431 | 0.015 | Accepted |
| H2 | UNR→TER | 0.168 | 2.299 | 0.022 | Accepted |
| H3 | INR→TER | 0.297 | 3.853 | 0.000 | Accepted |
| H4 | SYQ→TER | −0.372 | 2.219 | 0.027 | Accepted |
| H5 | SYQ→SAT | 0.202 | 2.532 | 0.012 | Accepted |
| H6 | KMQ→TER | 0.657 | 33.263 | 0.000 | Accepted |
| H7 | KMQ→SAT | −0.316 | 6.593 | 0.000 | Accepted |
| H8 | SEQ→TER | −0.109 | 2.349 | 0.019 | Accepted |
| H9 | SEQ→SAT | 0.564 | 8.710 | 0.000 | Accepted |
| H10 | TER→ORA | 0.160 | 5.783 | 0.000 | Accepted |
| H11 | TER→SAT | 0.503 | 7.424 | 0.000 | Accepted |
| H12 | SAT→ORA | 0.820 | 31.260 | 0.000 | Accepted |

Note: GOR = government; UNR = university; INR = industry; SYQ = system quality; KMQ = knowledge quality; SEQ = service quality; TER = technology readiness; SAT = user satisfaction; ORA = organizational ambidexterity.

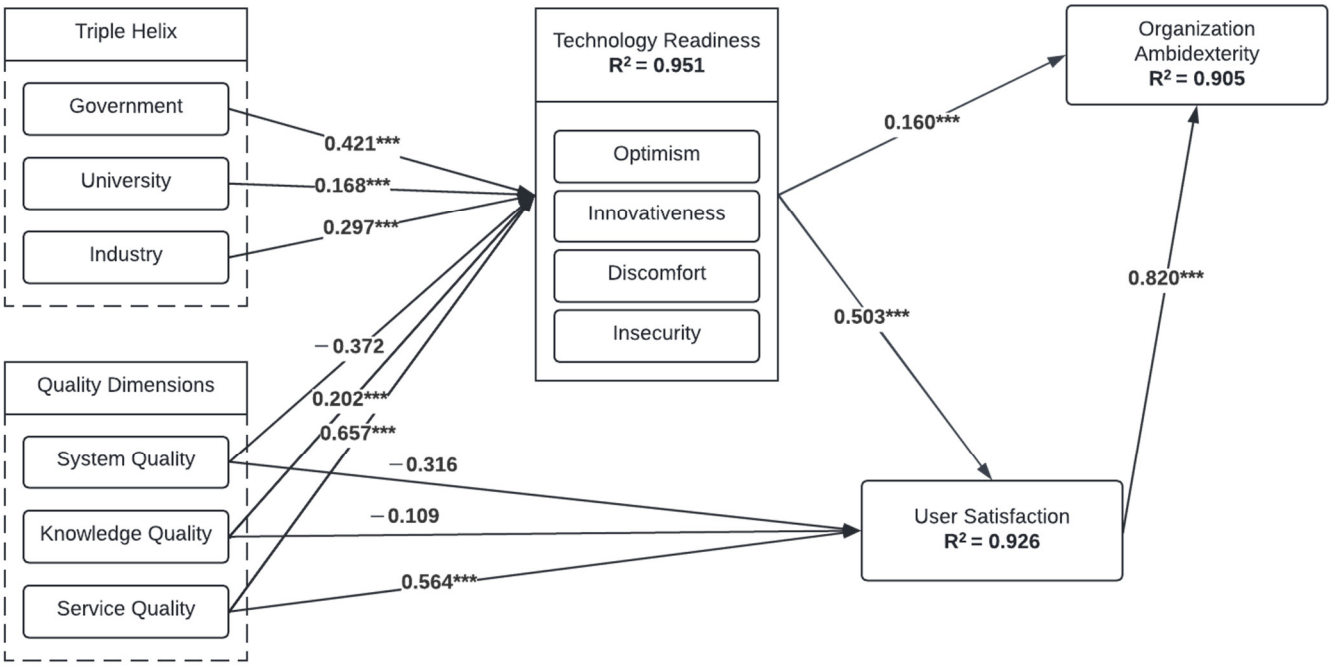


**Figure 2.** The inner model framework results. *** = *p*-value > 0.001.

### *5.3. Mediation Effects Testing*

In order to determine whether or not the mediators of the relationships explored here are statistically significant, we perform a path analysis and then use the Sobel test. The results of the Sobel test are used to estimate the T value and the *p* value, as shown in Table 7, which may be used to conclude whether or not the indirect impact is statistically significant. All of the T values of the mediators are more than 1.96, showing the presence of substantial mediating effects between the dependent and the independent variables.

**Table 7.** Mediation test results.

| Construct | Construct Relationship | t Value of Path Coefficient | Sobel Test | *p*-Value |
|---|---|---|---|---|
| GOR→TER→ORA | GOR→TER | 2.431 | 2.241 | 0.025 |
| | TER→ORA | 5.783 | | |
| GOR→TER→SAT | GOR→TER | 2.431 | 2.310 | 0.020 |
| | TER→SAT | 7.424 | | |
| UNR→TER→ORA | UNR→TER | 2.299 | 2.136 | 0.032 |
| | TER→ORA | 5.783 | | |
| UNR→TER→SAT | UNR→TER | 2.299 | 2.196 | 0.028 |
| | TER→SAT | 7.424 | | |
| INR→TER→ORA | INR→TER | 3.853 | 3.206 | 0.001 |
| | TER→ORA | 5.783 | | |
| INR→TER→SAT | INR→TER | 3.853 | 3.419 | 0.000 |
| | TER→SAT | 7.424 | | |
| SYQ→TER→ORA | SYQ→TER | 2.219 | 2.071 | 0.038 |
| | TER→ORA | 5.783 | | |
| SYQ→TER→SAT | SYQ→TER | 2.219 | 2.126 | 0.033 |
| | TER→SAT | 7.424 | | |
| SYQ→SAT→ORA | SYQ→SAT | 2.532 | 2.523 | 0.011 |
| | SAT→ORA | 31.260 | | |
| KMQ→TER→ORA | KMQ→TER | 33.263 | 5.697 | 0.000 |
| | TER→ORA | 5.783 | | |
| KMQ→TER→SAT | KMQ→TER | 33.263 | 7.245 | 0.000 |
| | TER→SAT | 7.424 | | |
| KMQ→SAT→ORA | KMQ→SAT | 6.593 | 6.451 | 0.000 |
| | SAT→ORA | 31.260 | | |
| SEQ→TER→ORA | SEQ→TER | 2.349 | 2.176 | 0.029 |
| | TER→ORA | 5.783 | | |
| SEQ→TER→SAT | SEQ→TER | 2.349 | 2.239 | 0.025 |
| | TER→SAT | 7.424 | | |
| SEQ→SAT→ORA | SEQ→SAT | 8.710 | 8.390 | 0.000 |
| | SAT→ORA | 31.260 | | |
| TER→SAT→ORA | TER→SAT | 7.424 | 7.223 | 0.000 |
| | SAT→ORA | 31.260 | | |

Note: GOR = government; UNR = university; INR = industry; SYQ = system quality; KMQ = knowledge quality; SEQ = service quality; TER = technology readiness; SAT = user satisfaction; ORA = organizational ambidexterity.

## 6. Discussion

This study examines the relationship between stakeholders from the triple helix (university, industry, and government) and quality dimensions (system quality, knowledge quality, and service quality) in relation to organizational ambidexterity, technology readiness, and user satisfaction. The empirical results of this study provide several important insights and contributions to the field that are useful for both practitioners and scholars.

Based on the results of the analysis, as described in Table 7 and Figure 2, the followings are concluded: The GOR variable is positive and has a significant influence on the TER

variable, so Hypothesis 1 is accepted, H1 (GOR→TER: β = 0.421, t value = 2.431). The UNR variable is positive and has a significant influence on the TER variable, so Hypothesis 2 is accepted, H2 (UNR→TER: β = 0.168, t value = 2.299). The next hypothesis is that the INR variable is positive and has a significant impact on the TER variable, so Hypothesis 3 is accepted, H3 (INR→TER: β = 0.297, t value = 3.853). It shows similarities with previous research that the triple helix has a significant impact on organizational ambidexterity, although this study used the moderator technology readiness [13,14,48]. The SYQ variable is positive and has a significant influence on the TER variable, so Hypothesis 4 is accepted, H4 (SYQ→TER: β = −0.372, t value = 2.219). Furthermore, the results of the analysis show that the variable SYQ is positive and has a significant influence on the variable SAT, so Hypothesis 5 is accepted, H5 (SYQ→SAT: β = 0.202, t value = 2.532). The KMQ variable is positive and has a significant influence on the TER variable, so Hypothesis 6 is accepted, H6 (KMQ→TER: β = 0.657, t value = 33.263). Lastly, the KMQ variable is positive and has a significant impact on the SAT variable, so Hypothesis 7 is accepted, H7 (KMQ→SAT: β = −0.316, t value = 6.593). The SEQ variable is positive and has a significant influence on the TER variable, so Hypothesis 8 is accepted, H8 (SEQ→TER: β = 0.109, t-value = 2.349). The SEQ variable is positive and has a significant influence on the SAT variable, so Hypothesis 9 is accepted, H9 (SEQ→SAT: β = 0.564, t value = 8.710). The results of the analysis show that the quality dimensions have a significant influence on technology readiness and user satisfaction, which has similarities with several previous studies [19,20,29]. Moreover, the TER variable is positive and has a significant influence on the ORA variable, so Hypothesis 10 is accepted, H10 (TER→ORA: β = 0.160, t value = 5.783). The TER variable is positive and has a significant influence on the SAT variable, so Hypothesis 11 is accepted, H11 (TER→SAT: β = −0.503, t value = 7.424). In addition, the analysis results show that the SAT variable is positive and has a significant influence on the ORA variable, so Hypothesis 12 is accepted, H12 (SAT→ORA: β = 0.820, t value = 31.260). The next hypothesis states that technology readiness and user satisfaction have a significant influence on organizational ambidexterity, which has similarities with the research of several previous studies [36,37,39].

## 7. Conclusions, Limitations and Future Work

When organizations change quickly, members and leaders are very interested in what an organization offers. Nevertheless, they are also paying more attention to how they can change with the times and keep coming up with new ideas to stay ahead of their competitors. This study shows that the triple helix and quality dimensions affect organizational ambidexterity mediated by technology readiness and user satisfaction.

In spite of the authors' best attempts to provide a thorough study framework, methodologies, and data collecting, many flaws remain to be addressed in future research. To begin, the triple helix variables and quality dimensions are not directly related to organizational ambidexterity, but rather act as mediators through technology readiness and user satisfaction. Future research should focus on developing a direct interaction between the two variables, as well as possibly adding more variables. Second, the subject of this research is a general organization, both a public service provider and a for-profit organization, and it is not narrowly focused on either. The selection of objects is motivated by a number of factors. To summarize, both types of organizations can develop organizational ambidexterity, so future research can focus on one or both, but in different frameworks and comparisons. Third, this study employs only three of the available quality dimensions: system quality, knowledge quality, and service quality. Other dimensions should be considered for future research. Although this study focuses on these three dimensions in terms of customer-oriented goals, other dimensions focusing on management and organizational structures can also be used. Finally, additional research suggests using references or other more recent future research. The goal of this study is to create a counterbalance to innovation in an organization. For more, the research tested in this study will be very relevant in the future, but given the rapid evolution of time, using other research alongside this research will

be a comparison that will help understand the concept of organizational ambidexterity more deeply.

### *7.1. Theoretical Implications*

This study makes significant contributions to the corpus of research on the triple helix, quality dimensions, technology readiness, user satisfaction, and organizational ambidexterity. First, we present a comprehensive model of the antecedents of the role of the triple helix and quality dimensions in fostering organizational ambidexterity. There is a dearth of research on organizational ambidexterity, despite the fact that many membership and organizational management factors support the interaction of the triple helix and quality dimensions on technology readiness. This is the first study to validate technology readiness and user satisfaction in the context of organizational ambidexterity. Our research complements this study by incorporating technology readiness and user satisfaction within the framework of organizational ambidexterity. This research adds to the existing body of knowledge by making use of a unique dataset comprised of previously performed marketing surveys.

### *7.2. Managerial Implications*

The findings of this study provide a contribution to the growth of organizational ambidexterity within organizations. This study's findings suggest that management should recognize the significance of implementing and expanding the concept of organizational ambidexterity. This study found, based on the tested hypotheses, that the triple helix, quality dimensions, technology readiness, and user satisfaction play a crucial role in the development of organizational ambidexterity. The relationship between the three pillars of the triple helix—university, government, and industry—plays the most key role in the success of organizational ambidexterity via technology readiness and user satisfaction. With their technology and research, universities can provide organizations with technology and advice on the most recent innovations that can be used to drive innovation. Although industry gives the least importance compared to the other pillars, it plays a crucial role in facilitating transactions and service delivery through marketing, advertising, and workforce support. The government, on the other hand, plays the most significant role as a creator of rules and regulations. Without the support and protection of a government-issued law, an organization's development and survival are impossible.

Secondly, quality dimensions also have a substantial effect on user satisfaction, and leaders must comprehend the following points: (1) system quality motivates new users or customers to utilize a business's services or products. This is essential because prospective organization members form a favorable first impression based on the quality of the system. (2) The effect of the knowledge quality serves as a driving force for the other two qualities. Due to the fact that the flow of quality information generally occurs in both systems, as well as in almost every variable, the quality of information reaching the customer is the most important factor for both new and existing users. In comparison to other quality dimensions, service quality plays the most significant role. In this study, it was discovered that it is simple to attract a user, but difficult to ensure that this user remains loyal or continues to use an organization's services; this obstacle can be circumvented by improving service quality. The majority of those we interviewed cited service quality as the most important factor in their loyalty or satisfaction with an organization.

Thirdly, technology readiness and user satisfaction have direct effects on the ambidexterity of an organization. Technology readiness, which is supported by the triple helix and quality dimensions, serves as a psychological mediator between users and an organization's growth. By understanding the factors of technology readiness (optimism, innovation readiness, discomfort, and uncertainty), leaders can determine where their organization's most recent system or innovation is deficient or flawed. Understanding this gives leaders tremendous power, particularly when balancing the organization's evolution to ensure its long-term survival. On the other hand, user satisfaction ensures the existence

of a customer or member of an organization. By understanding the concept of quality dimensions and combining it with user satisfaction, managers can ensure the continued use of the services or products they provide by customers or users. Several of the hypotheses we tested indicate that users or customers prefer what the organization offers at any given time to what it can offer at the beginning.

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**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

**Table A1.** Questionnaire measurement items.

| | |
|---|---|
| **Triple Helix; Source: [12–15,17,23]** | |
| UNR1 | The university plays an essential part in the organization's growth. |
| UNR2 | The university delivers solutions to the organization in the form of new knowledge. |
| UNR3 | Education experts are concerned with the growth of the organization. |
| UNR4 | The university gives the organization active assistance. |
| UNR5 | With assistance from the university, the organization's quality has improved. |
| INR1 | The industry delivers trained labor for the accomplishment of organizational objectives. |
| INR2 | Industry assists a business in the processing or marketing of its goods or services. |
| INR3 | Because of the industry's involvement, the organization's services or products are of higher quality. |
| INR4 | Industry has a crucial influence in an organization's finance. |
| INR5 | I believe that a strong organization is one that has relations to multiple industries. |
| GOR1 | The government must establish a relationship with all organizations. |
| GOR2 | A reputable organization complies with government regulations. |
| GOR3 | The government must evaluate an organization's latest advances. |
| GOR4 | A government that communicates actively with organizations inspires my trust in innovation development. |
| GOR5 | I anticipate that the government will oversee the growth of each government organization. |
| Quality Dimensions; source: [18,20–22] | |
| SYQ1 | I always evaluate a business's worth based on the system they employ. |
| SYQ2 | I anticipate system procedures that are straightforward. |
| SYQ3 | I expect the system to utilize cutting-edge technology. |
| SYQ4 | I value systems with an intuitive interface. |
| SYQ5 | The development of a system within an organization is critical to me. |

**Table A1.** *Cont.*

| | |
|---|---|
| KMQ1 | The company's knowledge and information must be accurate. |
| KMQ2 | I prioritize businesses that can effectively communicate information. |
| KMQ3 | I expect the company's information to be truthful and trustworthy. |
| KMQ4 | A business that can process the information it has is a good company. |
| KMQ5 | Information and knowledge are crucial to a company. |
| SEQ1 | The primary focus of an organization should be on the quality of its service. |
| SEQ2 | I give preference to companies who maintain the quality of their services. |
| SEQ3 | I believe a successful company ensures the quality of its offerings. |
| SEQ4 | I want the company to deliver the greatest customer service possible constantly. |
| SEQ5 | The service quality of the company must be able to improve over time. |
| SYQ1 | I always evaluate a business's worth based on the system they employ. |
| | Technology Readiness; Source: [23–25] |
| OPT1 | My trust grows when an organization can guarantee ambidexterity. |
| OPT2 | I have more confidence in a company that ensures its business continuity. |
| OPT3 | My optimism grows when the company always puts my satisfaction first. |
| INV1 | I prefer companies that can continue to grow and innovate. |
| INV2 | For me, a good company can keep up with the times. |
| INV3 | I use the services of the organization to improve my knowledge. |
| DIC1 | I am concerned that my privacy is no longer protected in the advancing world. |
| DIC2 | I have doubts about organizations that never adopt the latest innovations. |
| DIC3 | Organizations that fail to innovate well are putting their members at a disadvantage. |
| INS1 | Organizational developments are too fast for me to keep up with them. |
| INS2 | Innovations complicate procedures. |
| INS3 | A lot of people are better educated than I am. |
| | User Satisfaction; Source: [26,28–31] |
| SAT1 | When the organization uses the most recent innovations, I am satisfied. |
| SAT2 | I am content if the organization prioritizes its members. |
| SAT3 | If the organization can continue to expand, I will always be a member or customer. |
| SAT4 | I favor an organization that can determine the requirements of its members or clients. |
| SAT5 | I am content if I can utilize the organization's most recent innovations. |
| | Organizational Ambidexterity; Source: [34,36–38] |
| ORA1 | Organizations must be capable of further expansion. |
| ORA2 | Organizations must always prioritize their members. |
| ORA3 | Organizations should focus on the most recent innovations. |
| ORA4 | A well-balanced development is an indication of a well-established organization. |
| ORA5 | The development of an organization is more valuable than its profit. |

Note: UNR = university; INR = industry; GOR = government; SYQ = system quality; KMQ = knowledge quality; SEQ = service quality; OPT = opportunity; INV = innovativeness; DIC = discomfort; INS = insecurity; SAT = user satisfaction; ORA = organizational ambidexterity.

**Table A2.** Factors' loadings and cross-loadings.

| | DIC | GOR | INR | INS | INV | KMQ | OPT | ORA | SAT | SEQ | SYQ | UNR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DIC1 | 0.845 | 0.846 | 0.856 | 0.735 | 0.523 | 0.553 | 0.643 | 0.844 | 0.800 | 0.754 | 0.835 | 0.857 |
| DIC2 | 0.886 | 0.705 | 0.766 | 0.815 | 0.574 | 0.615 | 0.727 | 0.704 | 0.712 | 0.615 | 0.695 | 0.766 |
| DIC3 | 0.865 | 0.685 | 0.655 | 0.844 | 0.880 | 0.858 | 0.769 | 0.687 | 0.644 | 0.635 | 0.677 | 0.656 |
| GOR1 | 0.821 | 0.823 | 0.825 | 0.682 | 0.478 | 0.513 | 0.597 | 0.815 | 0.749 | 0.697 | 0.811 | 0.827 |
| GOR2 | 0.698 | 0.853 | 0.829 | 0.671 | 0.538 | 0.545 | 0.590 | 0.862 | 0.870 | 0.858 | 0.860 | 0.830 |
| GOR3 | 0.704 | 0.873 | 0.843 | 0.685 | 0.503 | 0.532 | 0.613 | 0.878 | 0.865 | 0.838 | 0.879 | 0.841 |
| GOR4 | 0.678 | 0.828 | 0.763 | 0.623 | 0.474 | 0.477 | 0.553 | 0.835 | 0.775 | 0.826 | 0.836 | 0.763 |
| GOR5 | 0.542 | 0.658 | 0.507 | 0.563 | 0.567 | 0.594 | 0.573 | 0.625 | 0.523 | 0.643 | 0.631 | 0.495 |
| INR1 | 0.765 | 0.792 | 0.816 | 0.654 | 0.449 | 0.480 | 0.565 | 0.782 | 0.722 | 0.674 | 0.784 | 0.792 |
| INR2 | 0.648 | 0.807 | 0.794 | 0.627 | 0.488 | 0.494 | 0.543 | 0.814 | 0.823 | 0.819 | 0.812 | 0.780 |
| INR3 | 0.669 | 0.814 | 0.833 | 0.673 | 0.466 | 0.489 | 0.582 | 0.822 | 0.848 | 0.829 | 0.816 | 0.811 |
| INR4 | 0.726 | 0.776 | 0.862 | 0.679 | 0.516 | 0.549 | 0.621 | 0.781 | 0.844 | 0.735 | 0.775 | 0.858 |
| INR5 | 0.751 | 0.675 | 0.802 | 0.726 | 0.542 | 0.552 | 0.740 | 0.677 | 0.740 | 0.624 | 0.674 | 0.788 |
| INS1 | 0.659 | 0.551 | 0.594 | 0.798 | 0.489 | 0.526 | 0.613 | 0.552 | 0.580 | 0.517 | 0.542 | 0.580 |
| INS2 | 0.761 | 0.737 | 0.791 | 0.812 | 0.523 | 0.556 | 0.677 | 0.734 | 0.752 | 0.695 | 0.728 | 0.778 |
| INS3 | 0.828 | 0.658 | 0.625 | 0.834 | 0.852 | 0.816 | 0.714 | 0.660 | 0.616 | 0.607 | 0.649 | 0.625 |
| INV1 | 0.865 | 0.686 | 0.655 | 0.844 | 0.882 | 0.860 | 0.769 | 0.688 | 0.645 | 0.636 | 0.678 | 0.656 |
| INV2 | 0.547 | 0.468 | 0.458 | 0.565 | 0.840 | 0.765 | 0.588 | 0.455 | 0.440 | 0.428 | 0.456 | 0.453 |
| INV3 | 0.561 | 0.459 | 0.426 | 0.584 | 0.890 | 0.872 | 0.717 | 0.452 | 0.419 | 0.427 | 0.448 | 0.424 |
| KMQ1 | 0.856 | 0.680 | 0.647 | 0.832 | 0.863 | 0.851 | 0.755 | 0.679 | 0.631 | 0.625 | 0.671 | 0.647 |
| KMQ2 | 0.549 | 0.467 | 0.460 | 0.559 | 0.831 | 0.757 | 0.577 | 0.456 | 0.441 | 0.427 | 0.456 | 0.454 |
| KMQ3 | 0.543 | 0.444 | 0.410 | 0.560 | 0.866 | 0.855 | 0.695 | 0.436 | 0.401 | 0.409 | 0.432 | 0.408 |
| KMQ4 | 0.605 | 0.480 | 0.491 | 0.642 | 0.720 | 0.844 | 0.860 | 0.476 | 0.489 | 0.440 | 0.467 | 0.494 |
| KMQ5 | 0.684 | 0.617 | 0.561 | 0.649 | 0.725 | 0.857 | 0.858 | 0.608 | 0.557 | 0.552 | 0.606 | 0.574 |
| OPT1 | 0.655 | 0.527 | 0.535 | 0.693 | 0.773 | 0.882 | 0.905 | 0.523 | 0.535 | 0.493 | 0.515 | 0.539 |
| OPT2 | 0.694 | 0.610 | 0.562 | 0.669 | 0.738 | 0.868 | 0.884 | 0.603 | 0.553 | 0.546 | 0.598 | 0.571 |
| OPT3 | 0.780 | 0.724 | 0.830 | 0.752 | 0.542 | 0.562 | 0.774 | 0.726 | 0.786 | 0.671 | 0.721 | 0.828 |
| ORA1 | 0.838 | 0.828 | 0.833 | 0.702 | 0.497 | 0.533 | 0.618 | 0.823 | 0.757 | 0.705 | 0.816 | 0.834 |
| ORA2 | 0.711 | 0.859 | 0.833 | 0.683 | 0.543 | 0.550 | 0.595 | 0.875 | 0.881 | 0.868 | 0.865 | 0.832 |
| ORA3 | 0.709 | 0.875 | 0.852 | 0.689 | 0.498 | 0.529 | 0.615 | 0.885 | 0.869 | 0.842 | 0.880 | 0.850 |
| ORA4 | 0.694 | 0.841 | 0.772 | 0.635 | 0.484 | 0.488 | 0.562 | 0.855 | 0.788 | 0.837 | 0.849 | 0.777 |
| ORA5 | 0.551 | 0.669 | 0.523 | 0.572 | 0.583 | 0.607 | 0.589 | 0.644 | 0.542 | 0.656 | 0.644 | 0.512 |
| SAT1 | 0.708 | 0.860 | 0.831 | 0.681 | 0.538 | 0.544 | 0.593 | 0.876 | 0.880 | 0.870 | 0.866 | 0.830 |
| SAT2 | 0.522 | 0.710 | 0.671 | 0.521 | 0.366 | 0.383 | 0.448 | 0.706 | 0.789 | 0.808 | 0.703 | 0.659 |
| SAT3 | 0.692 | 0.841 | 0.845 | 0.685 | 0.486 | 0.511 | 0.599 | 0.850 | 0.875 | 0.849 | 0.845 | 0.840 |
| SAT4 | 0.762 | 0.800 | 0.875 | 0.702 | 0.530 | 0.571 | 0.648 | 0.806 | 0.868 | 0.755 | 0.800 | 0.878 |
| SAT5 | 0.780 | 0.722 | 0.831 | 0.752 | 0.545 | 0.566 | 0.775 | 0.724 | 0.785 | 0.668 | 0.719 | 0.828 |
| SEQ1 | 0.670 | 0.819 | 0.752 | 0.614 | 0.470 | 0.472 | 0.543 | 0.824 | 0.759 | 0.819 | 0.826 | 0.754 |
| SEQ2 | 0.547 | 0.659 | 0.517 | 0.565 | 0.557 | 0.581 | 0.567 | 0.626 | 0.532 | 0.654 | 0.632 | 0.506 |
| SEQ3 | 0.666 | 0.821 | 0.792 | 0.642 | 0.492 | 0.502 | 0.556 | 0.838 | 0.839 | 0.847 | 0.832 | 0.794 |
| SEQ4 | 0.516 | 0.684 | 0.641 | 0.508 | 0.363 | 0.378 | 0.436 | 0.677 | 0.744 | 0.790 | 0.676 | 0.629 |
| SEQ5 | 0.608 | 0.759 | 0.770 | 0.601 | 0.429 | 0.441 | 0.521 | 0.772 | 0.799 | 0.808 | 0.764 | 0.774 |

**Table A2.** *Cont.*

| | DIC | GOR | INR | INS | INV | KMQ | OPT | ORA | SAT | SEQ | SYQ | UNR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SYQ1 | 0.816 | 0.817 | 0.819 | 0.680 | 0.475 | 0.509 | 0.593 | 0.808 | 0.742 | 0.691 | 0.808 | 0.824 |
| SYQ2 | 0.682 | 0.831 | 0.807 | 0.652 | 0.519 | 0.528 | 0.579 | 0.840 | 0.849 | 0.837 | 0.847 | 0.818 |
| SYQ3 | 0.690 | 0.861 | 0.828 | 0.668 | 0.493 | 0.520 | 0.599 | 0.865 | 0.853 | 0.828 | 0.871 | 0.828 |
| SYQ4 | 0.646 | 0.809 | 0.747 | 0.602 | 0.469 | 0.466 | 0.534 | 0.817 | 0.755 | 0.813 | 0.824 | 0.742 |
| SYQ5 | 0.524 | 0.647 | 0.497 | 0.539 | 0.545 | 0.572 | 0.555 | 0.613 | 0.511 | 0.632 | 0.624 | 0.484 |
| UNR1 | 0.792 | 0.791 | 0.796 | 0.662 | 0.470 | 0.502 | 0.581 | 0.783 | 0.718 | 0.668 | 0.785 | 0.814 |
| UNR2 | 0.626 | 0.768 | 0.750 | 0.596 | 0.462 | 0.475 | 0.535 | 0.775 | 0.786 | 0.778 | 0.783 | 0.784 |
| UNR3 | 0.653 | 0.808 | 0.813 | 0.645 | 0.469 | 0.485 | 0.561 | 0.819 | 0.843 | 0.842 | 0.812 | 0.817 |
| UNR4 | 0.741 | 0.794 | 0.863 | 0.694 | 0.525 | 0.562 | 0.637 | 0.800 | 0.857 | 0.750 | 0.793 | 0.876 |
| UNR5 | 0.755 | 0.701 | 0.817 | 0.727 | 0.535 | 0.555 | 0.758 | 0.703 | 0.766 | 0.648 | 0.701 | 0.825 |

Note: UNR = university; INR = industry; GOR = government; SYQ = system quality; KMQ = knowledge quality; SEQ = service quality; OPT = opportunity; INV = innovativeness; DIC = discomfort; INS = insecurity; SAT = user satisfaction; ORA = organizational ambidexterity.

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